Department of Computer Science & Engineering
The University of Texas at Arlington

Project Charter
CSE 4316: Senior Design I
Summer 2018

The Brew Crew
Automactic Boil Manager

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Revision History

Revision	Date	Author(s)	Description
0.1	06.25.2018	MD	Document Creation
0.2	06.27.2018	PD	Document Updated
0.3	07.05.2018	PD MD VT RV EM	Document Updated
0.4	07.19.2018	PD	Deleted Burndown Chart Image
0.9	07.19.2018	MD	Final Version

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List of Figures

1 Vision

Our goal is to fully automate the boil management stage of the beer brewing process.

2 Mission

The ultimate aim is to make managing the boil a fully automated process which can be handled without human labor.

3 Success Criteria

User can start the process on the machine using a touch screen. The machine will succsessfully read beersmith 2 xml format. The machine adds hops at the appropriate times.

4 Background

The idea belonged to the professor of this course. We took it on because it sounded like an enjoyable challenge.

5 Related Work

Work from Computer Engineering courses could be of use for this project. Such as Embedded Systems for retrieving a temperature and creating a Timer, as well with Electronics for making a motor or creating the electrical portion for the product and etc.

6 System Overview

The Automated Brewing System should manage our boil with a push of a button with zero human interaction.

7 Roles & Responsibilities

Peter Dang
Some strengths that I possess would be some Embedded and Electrical Hardware skills that I can put on the table. I am pretty comfortable with the Embedded Systems work while continually working with students as a T.A. I can also contribute a little bit as a Scrum Master since I am quite familiar with everybody in the group, and can exchange information with others to meet deadlines.

Matt Draft
I am well organized, motivated and detail oriented. I am comfortable with many different technologies such as python, raspberry pi, aurdiuno and others which may come in handy for this project. (we should probably all get together to discuss what roles exist and who should be responsible for what)

Eddie Molina
I am familiar with embeddeed systems programming, and can build and solder circuits together. I am mechanically inclined and can put together a system that will require valves, pumps, and pipe connections which will be useful for this project. I can also research equipment pricing in order to stay within budget restraints.

Marco Paramo
My strengths will be in developing and testing software. I am comfortable with many different programming languages and am constantly learning more about them in order to make more stable code. Some past projects I have worked on have been creating a chat room, many IRC chat bots, and video games. Being able to create simple and efficient solutions to problems is what I strive to do in any project I work on.

Van Ta
Throughout my college career, I worked on many group projects with various restrictions, resulting in me being adaptable to most random problems. I have learned a few programming languages and had some experiences with embedded systems like the arduino microcontroller or a custom ABET alarm system. I know a majority of the group members, so I believe we will work very well together.

Robert Villazana
My strengths include hardware programming, such as embedded systems, and soldering and wiring things up. I am also comfortable in programming in C and Python. I also have a little bit of knowledge

in front-end web development.

8 Facilities & Equipment

Facilities that can be used would of course be the Senior Design Lab. We can also use the Embedded Systems Lab when not occupied with Peter's access.

9 Cost Proposal

Our biggest goal is to keep the budget under $800, but could possibly be exceeded if needed.

9.1 Preliminary Budget

We are to put a $500 budget on hardware materials and $300 on any other necessities.

9.2 Current & Pending Support

Funds will be received from UTA with the $800 they give us, as well as any other donations.

10 Documentation & Reporting

In this section, you will describe all of the various artifacts that you will generate and maintain during the project lifecycle. Describe the purpose of each item below, how the content will be generated, where it will be stored, how often it will be updated, etc.

10.1 Project Charter

Project Charter will be used to document the initial planning for the project.

10.2 Product Backlog

The purpose of the backlog is to have a guideline to keep an understanding what objectives can be done at a certain time so deadlines can be met. It will be generated and updated at every meeting we have.

10.3 Sprint Planning

Sprint Planning will be set up and updated at every meeting we have. Objectives will be made with a team voting.

10.3.1 Sprint Goal

Everybody will state which sprint goals they are most comfortable with and whichever one with the most votes will be pursued.

10.3.2 Sprint Backlog

Goals will be set to whomever would like to work on the goal after all of the goals have been stated.

10.3.3 Task Breakdown

Tasks will be assigned to whomever would like to work on.

10.4 Sprint Burndown Charts

We do this every two weeks.

10.5 Sprint Retrospective

On weekly meetings, we will decide upon our current course of action. We will adjust course mid sprint by utilizing slack and github.

10.6 Individual Status Reports

On weekly meetings, individual status will be reported.

10.7 Engineering Notebooks

Engineering Notebooks will be updated on the specific sprint they are assigned. Another person that is in the group is to sign off on the status.

10.8 Closeout Materials

Deliverables will be documentation, source code, the automated brewing system, a manual, and a demo video.

10.8.1 System Prototype

Lorem ipsum dolor sit amet, quidam omnesque ea vis. Eum an aliquip legendos recusabo. Mea ex purto natum, ne movet fuisset sit. Labore audiam eos ad, facer ornatus posidonium ne ius, et eos duis delenit nusquam.

10.8.2 Project Poster

Project Poster will be made once the brewing system is complete.

10.8.3 Web Page

Lorem ipsum dolor sit amet, quidam omnesque ea vis. Eum an aliquip legendos recusabo. Mea ex purto natum, ne movet fuisset sit. Labore audiam eos ad, facer ornatus posidonium ne ius, et eos duis delenit nusquam.

10.8.4 Demo Video

Demo video showing an example of the automated brewing system.

10.8.5 Source Code

Source code should not be needed to the customer. It would already be in the product.

10.8.6 Source Code Documentation

Doxygen will be used.

10.8.7 Hardware Schematics

Hardware Schematics will be pdf documents.

10.8.8 CAD files

CAD files will be stored in github.

10.8.9 Installation Scripts

Everything should be installed when product is with the customer.

10.8.10 User Manual

Can be made with a PDF and will be made in the end.